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CLAIMS

1. A safety arrangement for a medical needle having a mount end and a sharp tip, which arrangement comprises:
 - a support adapted directly or indirectly to carry the mount end of a
5 needle so that the needle projects forwardly away therefrom;
 - a sleeve mounted directly or indirectly on the support and being slideable with respect thereto from an initial position where the sleeve covers at least the greater part of a carried needle to a retracted position where the tip of a carried needle and a part of the needle back from its tip is exposed, and then to a
10 protecting position where the sleeve covers the needle tip and at least part of the needle back from its tip;
 - resilient means arranged to urge the sleeve towards its protecting position;
 - a blocking member at least a part of which projects forwardly from the
15 support, the blocking member being movable between a non-blocking position where the blocking member extends generally parallel to the needle axis and the sleeve may slide to its retracted position and a blocking position where the blocking member has moved from its non-blocking position so as to be disposed between the support and a part of the sleeve, thereby blocking movement of the
20 sleeve away from its protecting position; and
 - control means which releases the blocking member for movement from its non-blocking position to its blocking position on movement of the sleeve away from its initial position towards its retracted position, so that on subsequent movement of the sleeve to its protecting position the blocking member will
25 thereafter block movement of the sleeve away from its protecting position.
2. A safety arrangement as claimed in claim 1, wherein the blocking member when in its blocking position extends at an acute angle to the needle axis.
3. A safety arrangement as claimed in claim 2, wherein the blocking member is tubular and when in its non-blocking position is generally co-axial with the
30 sleeve and needle.
4. A safety arrangement as claimed in any of the preceding claims, wherein one end of the blocking member when in its blocking position co-operates with a wall portion of one of the support and the sleeve to apply a turning moment to the

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blocking member about an axis transverse to the length of the sleeve, so moving the second end of the blocking member to block retracting movement of the sleeve.

5 5. A safety arrangement as claimed in claim 4, wherein one end of the blocking member has an off-set boss projecting towards said adjacent wall portion of said one of the support and the sleeve, whereby on the one end of blocking member being urged towards said adjacent wall portion, the off-set projection applies said turning moment to the blocking member.

10 6. A safety arrangement as claimed in claim 4, wherein said wall portion has an off-set boss projecting towards the adjacent one end of the blocking member, whereby on said one end of the blocking member being urged towards said wall portion, the off-set projection applies said turning moment to the blocking member.

15 7. A safety arrangement as claimed in claim 4, wherein one end of the blocking member presents a non-radial face to said adjacent wall portion of said one of the support and the sleeve, whereby on the one end of blocking member being urged towards said adjacent wall portion, the non-radial face applies said turning moment to the blocking member.

20 8. A safety arrangement as claimed in claim 4, wherein said wall portion presents a non-radial face to the adjacent one end of the blocking member, whereby on said one end of the blocking member being urged towards said wall portion, the non-radial face applies said turning moment to the blocking member.

25 9. A safety arrangement as claimed in any of the preceding claims, wherein said support includes a bore in which is receivable a hypodermic syringe having said needle mounted on the forward end thereof such that when the syringe is received within said bore, the needle projects forwardly into the sleeve.

10. A safety arrangement as claimed in claim 9, wherein the sleeve is slidably mounted externally on the support.

11. A safety arrangement as claimed in claim 9, wherein the sleeve is slidably received within a tubular carrier, which carrier is mounted on said support.

30 12. A safety arrangement as claimed in claim 10 or claim 11, wherein the forward end of the sleeve has a generally radial inwardly directed flange having a central aperture through which the tip of the needle may project when the sleeve is in its withdrawn position.

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13. A safety arrangement as claimed in any of claims 9 to 12, wherein the blocking member is slidably carried on the sleeve but slides off the sleeve under the action of the resilient means to move to its blocking position when released by the control means.
- 5 14. A safety arrangement as claimed in any of claims 1 to 8 for use with a hypodermic syringe having a cylindrical body provided with a spigot at its forward end for receiving a needle having a mounting hub at its rearward end, wherein said support includes a socket for receiving the spigot of a hypodermic syringe, the support being provided with a needle to project forwardly from a mounted
10 syringe with the needle in communication with the spigot, and the sleeve being slideable on the external surface of the syringe body.
15. A safety arrangement as claimed in claim 14, wherein the support has a greater diameter than the external diameter of the syringe body and the blocking member is slideable over said external diameter of the support.
- 15 16. A safety arrangement as claimed in any of claims 1 to 8 for use with an injection device adapted to hold a cartridge of medicament which device has a cylindrical body provided with a spigot at its forward end, wherein said support includes a socket for receiving the spigot of the device, the support being provided with a needle to project forwardly from the spigot with the rear end of the needle in
20 communication with a cartridge carried by the device, the support having an external wall on which the sleeve is slidably supported.
17. A safety arrangement as claimed in claim 14, wherein the support has a forwardly-directed cylindrical surface of a smaller diameter than the external wall on which the sleeve is slideable, the blocking member being slidably carried on
25 said cylindrical surface.
18. A safety arrangement as claimed in any of the preceding claims, wherein the control means comprises includes a releasable connection between the sleeve and the blocking member.
19. A safety arrangement as claimed in claim 18, wherein movement of the
30 sleeve towards its retracted position releases the connection to permit the blocking member to move towards its blocking position.
20. A safety arrangement as claimed in claim 19, wherein there is a secondary releasable connection between the sleeve and the blocking member displaced

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axially from the first-mentioned releasable connection, the secondary releasable connection being released by initial movement of the sleeve towards its withdrawn position, and the first-mentioned releasable connection being released by further movement of the sleeve towards its withdrawn position so freeing the blocking member to move to its blocking position.

21. A safety arrangement as claimed in any one of claims 18 to 20, wherein the releasable connection comprises inter-engaged stops respectively on the mutually sliding surfaces of the blocking member and the sleeve, which stops will over-ride each other on the application of a sufficient axial force thereto.

22. A safety arrangement as claimed in any of claims 1 to 8, wherein there is a control member receivable within the sleeve and which initially supports the blocking member to lie substantially coaxial with the sleeve, there being a releasable connection between the sleeve and the control member which when released by movement of the sleeve away from its initial position permits the blocking member to move to its blocking position on movement of the sleeve to its protecting position.

23. A safety arrangement as claimed in claim 22, wherein the control member is located partly within the sleeve and partly within the blocking member, when the sleeve is in its initial position.

24. A safety arrangement as claimed in claim 23, wherein the releasable connection is formed directly between the outer surface of the control member and the internal surface of the sleeve.

25. A safety arrangement as claimed in any of claims 22 to 24, wherein the releasable connection comprises inter-engaged stops on both the outer surface of the control member and the internal surface of the sleeve, which stops will over-ride each other on the application of a sufficient axial force thereto.

26. A safety arrangement as claimed in claim 25, wherein the resilient means acts between the control member and an internal flange formed within the blocking member and so indirectly on the sleeve through the releasable connection.

27. A safety arrangement as claimed in claim 26, wherein the sleeve is formed with an internal stop at its forward end, the control member is a free sliding fit within the sleeve, and when the releasable connection is released, the control

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member moves forwardly under the action of the resilient means into engagement with the internal stop.

28. A safety arrangement as claimed in any of claims 22 to 24, wherein the releasable connection is formed by the control member fitting in the sleeve in a frictionally-engaging manner.

29. A safety arrangement as claimed in claim 28, wherein the resilient means surrounds the blocking member to act directly between one end of the sleeve and the blocking member.

30. A safety arrangement as claimed in claim 28 or claim 29, wherein the control member includes an axial projection which is received in the blocking member and is withdrawn therefrom by movement of the sleeve towards the needle tip, drawing the control member therewith.

31. A safety arrangement as claimed in claim 30, wherein the length of the axial projection is selected to control the maximum permissible movement of the sleeve towards its retracted position before subsequent movement of the sleeve in the opposite direction locks the sleeve against movement towards a retracted position.

32. A safety arrangement as claimed in any of claims 22 to 31, wherein the support defines a connector for a cylindrical body to extend coaxially with a needle connected thereto.

33. A safety arrangement as claimed in claim 32, wherein a connected cylindrical body serves slidably to support a sleeve moved from its initial position.

34. A safety arrangement as claimed in claim 32, wherein the support is defined by a rear wall of a tubular housing on or within which the sleeve is slidably mounted.

35. A safety arrangement as claimed in any of the preceding claims, wherein the resilient means comprises a helical coil spring.

36. A safety arrangement as claimed in any of the preceding claims and in combination with a needle the mount end of which is secured to the support, to project forwardly therefrom.